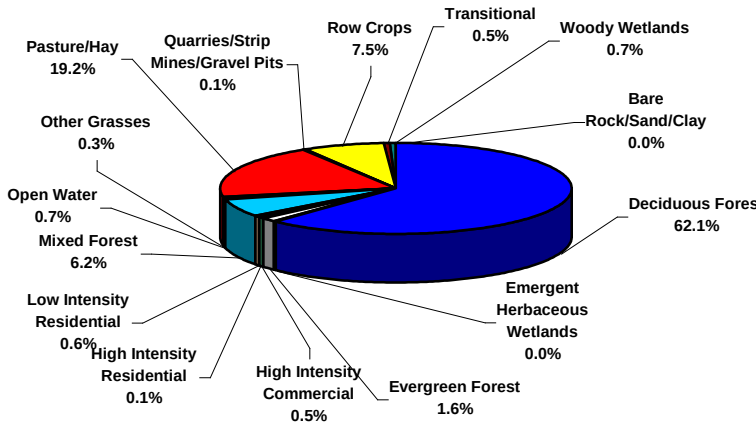
Summary – Lower Duck River

In 1996, the Tennessee Department of Environment and Conservation Division of Water Pollution Control adopted a watershed approach to water quality. This approach is based on the idea that many water quality problems, like the accumulation of point and nonpoint pollutants, are best addressed at the watershed level. Focusing on the whole watershed helps reach the best balance among efforts to control point sources of pollution and polluted runoff as well as protect drinking water sources and sensitive natural resources such as wetlands. Tennessee has chosen to use the USGS 8-digit Hydrologic Unit Code (HUC-8) as the organizing unit.

The Watershed Approach recognizes awareness that restoring and maintaining our waters requires crossing traditional barriers (point *vs.* nonpoint sources of pollution) when designing solutions. These solutions increasingly rely on participation by both public and private sectors, where citizens, elected officials, and technical personnel all have opportunities to participate. The Watershed Approach provides the framework for a watershed-based and community-based approach to address water quality problems.

Chapter 1 of the Lower Duck River Watershed Water Quality Management Plan discusses the Watershed Approach and emphasizes that the Watershed Approach is not a regulatory program or an EPA mandate; rather it is a decision-making process that reflects a common strategy for information collection and analysis as well as a common understanding of the roles, priorities, and responsibilities of all stakeholders within a watershed. Traditional activities like permitting, planning and monitoring are also coordinated in the Watershed Approach.

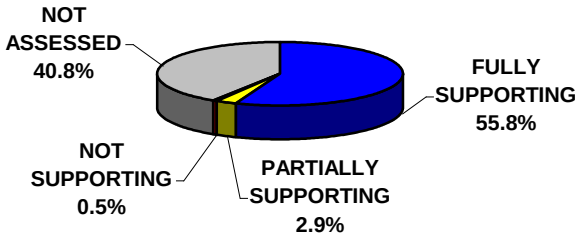
A detailed description of the watershed can be found in Chapter 2. The Lower Duck River Watershed is approximately 1,548 square miles and includes parts of nine Middle Tennessee counties. A part of the Tennessee River drainage basin, the watershed has 2,462 stream miles and 13 lake acres.



Land Use Distribution in the Lower Duck River Watershed.

Three interpretive areas and three wildlife management areas are located in the watershed. Eighty-one rare plant and animal species have been documented in the watershed, to include thirteen rare fish species, twelve rare mussel species, three rare snail species, and three rare reptile species. A portion of the Lower Duck River has been designated as a State Scenic River.

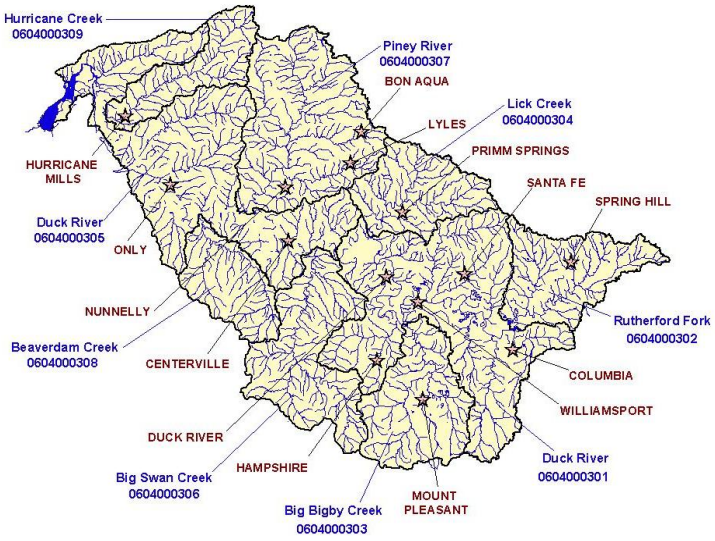
A review of water quality sampling and assessment is presented in Chapter 3. Using the Watershed Approach to Water Quality, 362 sampling events occurred in the Lower Duck River Watershed in 1999-2000. These were conducted at ambient, ecoregion or watershed monitoring sites. Monitoring results support the conclusion that 55.8% of total stream miles fully support designated uses.



Water Quality Assessment of Streams and Rivers in the Lower Duck River Watershed. Assessment data are based on the 2002 Water Quality Assessment of 2,461.8 miles in the watershed.

Also in Chapter 3, a series of maps illustrate Overall Use Support in the watershed, as well as Use Support for the individual uses of Fish and Aquatic Life Support, Recreation, Irrigation, and Livestock Watering and Wildlife. Another series of maps illustrate streams that are listed for impairment by specific causes (pollutants) such Siltation, Organic Enrichment/ Low Dissolved Oxygen, Habitat Alteration and Unionized Ammonia.

Point and Nonpoint Sources are addressed in Chapter 4. Chapter 4 is organized by HUC-10 subwatersheds. Maps illustrating the locations of STORET monitoring sites and USGS stream gauging stations are presented in each subwatershed.



The Lower Duck River Watershed is Composed of Nine USGS-Delineated Subwatersheds (10-Digit Subwatersheds).

Point source contributions to the Lower Duck River Watershed consist of 13 individual NPDES-permitted facilities, three of which discharge into streams that have been listed on the 1998 303(d) list. Other point source permits in the watershed are Aquatic Resource Alteration Permits (28), Tennessee Multi-Sector Permits (42), Mining Permits (1), Ready Mix Concrete Plant Permits (8), Water Treatment Plant Permits (3), and Concentrated Animal Feeding Operations (1). Agricultural operations include cattle, chicken, hog, and sheep farming. Maps illustrating the locations of NPDES and ARAP permit sites are presented in each subwatershed.

Chapter 5 is entitled *Water Quality Partnerships in the Lower Duck River Watershed* and highlights partnerships between agencies and between agencies and landowners that are essential to success. Programs of federal agencies (Natural Resources Conservation Service, U.S. Fish and Wildlife Service, U.S. Geological Survey, and Tennessee Valley Authority), and state agencies (TDEC Division of Community Assistance, TDEC Division of Water Supply, and Tennessee Department of Agriculture) are summarized. Local initiatives of active watershed organizations (TN Duck River Development Agency, TN Scenic River Association's Duck River Opportunities Project, Five Rivers RC&D Council and the Swan Conservation Trust) are also described.

Point and Nonpoint source approaches to water quality problems in the Lower Duck River Watershed are addressed in Chapter 6. Chapter 6 also includes comments received during public meetings, along with an assessment of needs for the watershed.

The full Lower Duck River Watershed Water Quality Management Plan can be found at: http://www.state.tn.us/environment/wpc/watershed/wsmplans/.